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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,449	01/02/2001	Ross Heitkamp	0023-0020	7260

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EXAMINER

CLEARY, THOMAS J

ART UNIT	PAPER NUMBER
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2181

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DATE MAILED: 08/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/751,449

Applicant(s)

HEITKAMP ET AL.

Examiner

Thomas J. Cleary

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/20/02.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 22-25 is/are rejected.
- 7) ☒ Claim(s) 20, 21, and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Number 228 on Page 7, Line 19 and Number 417 on Page 9, Line 18. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 23 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 23 states, "wherein the two wire serial bus is a two wire serial bus".

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jobs et al. ("Jobs") in view of Atkinson et al. ("Atkinson"), and Buckley et al. ("Buckley").

Jobs teaches all the limitations of Claim 1 except the midplane connected to the bus controller, the plurality of additional circuit boards connected to the midplane, and the local control logic for controlling the switch (See Figures 1, 2, and 3, and Column 3, Lines 26-45 of Jobs). Atkinson teaches a midplane with a plurality of circuit boards connected to a serial bus that traverses the midplane (See Figure 1 of Atkinson).

Buckley teaches a system wherein a local controller controls a device that is connected to a serial bus (See Figure 4 and Column 19, Lines 1-11 of Buckley). One of ordinary skill in the art at the time the invention was made would combine the expandable serial bus of Jobs with the midplane and circuit boards of Atkinson and the local control logic of Buckley, resulting in the inventions of Claims 1 and 2, in order to create a device which expands the address space of a serial bus in a low cost, modular way.

5. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jobs, Atkinson, and Buckley as applied to Claim 2 above, and further in view of Simpson et al. ("Simpson"). Jobs, Atkinson, and Buckley teach all the limitations of Claims 3 and 6 except for the multiplexer connected to the output of the bus controller and dividing the serial bus interface into a plurality of sub-buses, only one of which is

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connected to the bus controller at any given time (See Figures 1, 2, and 3, and Column 3, Lines 26-45 of Jobs; Figure 1 of Atkinson; and Figure 4 and Column 19, Lines 1-11 of Buckley). Simpson teaches the use of a multiplexer to divide a serial channel into a plurality of device groups, only one of which is accessible at a time (See Abstract, Figure 4, Column 1, Lines 66-67, and Column 2, Lines 1-15 of Simpson). One of ordinary skill in the art at the time the invention was made would combine the expandable serial bus address space on separate circuit boards of Jobs, Atkinson, and Buckley with the multiplexer and sub-buses of Simpson, resulting in the inventions of Claims 3 and 6, in order to allow virtually limitless expansion of the address space (See Column 2, Lines 58-63 of Simpson).

6. Claims 4, 5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jobs, Atkinson, Buckley, and Simpson as applied to Claim 3 above, and further in view of Li et al ("Li") and Lee et al. ("Lee"). Jobs, Atkinson, Buckley, and Simpson teach all the limitations of Claims 4, 5, and 7 except for the serial bus devices including at least one of a temperature sensor, a voltage monitor, an ID EPROM, an ID EPROM connected to the midplane, and a series of switches for selectively connecting and disconnecting portions of the serial bus together. (See Figures 1, 2, and 3, and Column 3, Lines 26-45 of Jobs; Figure 1 of Atkinson; Figure 4 and Column 19, Lines 1-11 of Buckley; and Abstract, Figure 4, Column 1, Lines 66-67, and Column 2, Lines 1-15 of Simpson). Li teaches the use of a serial temperature sensor and serial voltage sensor (See Column 4, Lines 23-49 of Li). Li also teaches a series of SCSI bus switches that

are used to connect segments of the bus together (See Abstract of Li). Lee teaches an ID EPROM device (See Column 3, Lines 1-15 of Lee). One of ordinary skill in the art at the time the invention was made would combine the expandable serial bus of Jobs, Atkinson, Buckley, and Simpson with the voltage sensor, temperature sensor, and plurality of the bus switches for separating bus segments of Li and the ID EPROM of Lee, and would control the switches with the local control logic, resulting in the inventions of Claims 4, 5, and 7, in order to provide a method for disabling sections of the bus that are not being used, and thus reduce its capacitive load, provide feedback to the processor as to the operating condition of the unit, and uniquely identify the unit and midplane which is currently operating.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jobs, Atkinson, Buckley, and Li as applied to Claim 7 above, and further in view of Foster et al. ("Foster"). Jobs, Atkinson, Buckley, and Li teach all the limitations of Claim 8 except for the local processor and the bus controller which interfaces it to the fourth portion of the serial bus (See Figures 1, 2, and 3, and Column 3, Lines 26-45 of Jobs; Figure 1 of Atkinson; Figure 4 and Column 19, Lines 1-11 of Buckley; and Abstract of Li). Foster teaches a local processor connected to a bus through a bus controller (See Figure 4A of Foster). One of ordinary skill in the art at the time the invention was made would construct the expandable serial bus of Jobs, Atkinson, Buckley, and Li with the local processors and bus controllers of Foster, resulting in the invention of Claim 8, in order to improve system efficiency by allowing the individual devices to operate on local data

while disconnected from the midplane and the master processor. By connecting the local processor and bus controller to the fourth portion of the bus, the first circuit board has access to the maximum number of bus segments and devices when it is connected.

8. Claims 9, 10, 11, 12, 13, 14, 15, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jobs, Atkinson, Buckley, Li, and Foster as applied to Claim 8 above, and further in view of Aggarwal et al. ("Aggarwal"). Jobs, Atkinson, Buckley, Li, and Foster teach all the limitations of Claims 9, 10, 11, 12, 13, 14, 15, 16, and 17 except for the routing engine for consolidating routing information learned from routing protocols in the network and the network device being a network router (See Figures 1, 2, and 3, and Column 3, Lines 26-45 of Jobs; Figure 1 of Atkinson; Figure 4 and Column 19, Lines 1-11 of Buckley; Abstract of Li; and Figure 4A of Foster). Aggarwal teaches a routing engine and a network router (See Figures 3 and 4, Column 4, Lines 34-38, and Column 5, Lines 49-66 of Aggarwal). One of ordinary skill in the art at the time the invention was made would combine the expandable serial bus of Jobs, Atkinson, Buckley, Li, and Foster (analogous to the packet forwarding engine of Claim 9) with the routing engine and router of Aggarwal, resulting in the inventions of Claims 9, 10, 11, 12, 13, 14, 15, 16, and 17 in order to provide a expandable address space serial bus device which can be connected to a network to receive and transmit data and instructions.

9. Claims 18, 19, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atkinson in view of Li, Foster, and Buckley. Atkinson teaches all the limitations of Claims 18, 19, 23, and 24 except for: a series of switches for selectively connecting and disconnecting portions of the serial bus together; a local processor; a bus controller which interfaces it to the fourth portion of the serial bus; a local control logic circuit connected to receive control information from the external circuit board and the local processor and control the first, second, and third switches, the local control logic circuit connecting the external circuit board and the local processor to different portions of the two wire serial bus; and a voltage monitor and temperature sensor connected to the second portion of the bus (See Figure 1 of Atkinson). Li teaches the use of a serial temperature sensor and serial voltage sensor (See Column 4, Lines 23-49 of Li). Li also teaches a series of SCSI bus switches that are used to connect segments of the bus together (See Abstract of Li). Foster teaches a local processor connected to a bus through a bus controller (See Figure 4A of Foster). Buckley teaches a system wherein a local controller controls a device that is connected to a serial bus (See Figure 4 and Column 19, Lines 1-11 of Buckley). One of ordinary skill in the art at the time the invention was made would combine the circuit board of Atkinson with the voltage sensor, temperature sensor, and plurality of the bus switches for separating bus segments of Li, the local processors and bus controllers of Foster, and the local control circuit of Buckley, resulting in the inventions of Claims 18, 19, 23, and 24, in order to provide a method for disabling sections of the bus that are not being used, and thus

reduce its capacitive load, as well as allow the individual devices to operate on local data while disconnected from the external circuit board.

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Atkinson, Li, Foster, and Buckley as applied to Claim 18 above, and further in view of Loftus et al. ("Loftus"). Atkinson, Li, Foster, and Buckley teach all the limitations of Claim 22 except for the second and third switches being controlled by the processor when the first switch is disconnected (See Figure 1 of Atkinson; Abstract of Li; Figure 4A of Foster; and Figure 4 and Column 19, Lines 1-11 of Buckley). Loftus teaches a system of two processors one of which is granted access to a series of I/O devices (analogous to switches 2 and 3 of Claim 22) while the other is denied access based on the position of a switch (analogous to switch 1 of Claim 22) (See Abstract and Figures 1 and 2 of Loftus). One of ordinary skill in the art at the time the invention was made would construct the device of Atkinson, Li, Foster, and Buckley with the switched processors of Loftus, resulting in the invention of Claim 22, in order to reduce capacitive load on the bus by allowing the local processor to choose which portions of the bus it needs to access when the external circuit board is disconnected from the bus.

11. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Atkinson, Li, and Foster as applied to Claim 18 above, and further in view of Lee. Atkinson, Li, and Foster teach all the limitations of Claim 25 except for an ID EPROM connected to the third portion of the two wire serial bus (See Figure 1 of Atkinson;

Abstract and Column 4, Lines 23-49 of Li; and Figure 4A of Foster). Lee teaches an ID EPROM device (See Column 3, Lines 1-15 of Lee). One of ordinary skill in the art at the time the invention was made would combine the circuit board of Atkinson, Li, and Foster with the ID EPROM of Lee, resulting in the invention of Claim 25, in order to provide feedback to the local processor as to the operating condition of the unit, as well as uniquely identify the unit and sub-bus which is currently operating.

Allowable Subject Matter

12. Claims 20 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas J. Cleary whose telephone number is 703-305-5824. The examiner can normally be reached on Monday-Thursday (8-5:30), Alt. Fridays (8-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H. Rinehart can be reached on 703-305-4815. The fax phone numbers for the organization where this application or proceeding is assigned are 703-

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746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-5631.

tjc
July 31, 2003

A handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

MARK H. RINEHART
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100